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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,237	12/07/2001	Bidyut K. Sen	03226/092001	5837

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EXAMINER

LEWIS, MONICA

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 12/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/010,237

Applicant(s)

SEN, BIDYUT K.

Examiner

Monica Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 8-17 is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the application filed December 7, 2001.

Specification

2. The disclosure is objected to because of the following informalities: it appears that the advantages of the invention should be disclosed in the brief summary instead of the detailed description.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive; preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.
- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

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- (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. **The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention).** In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet (37 CFR 1.52(b)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an

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abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the housing having an aperture must be shown or the feature(s) canceled from the claim(s) (See Claim 1). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1-17 are objected to because of the following informalities: Please remove the “[c_]” from all the claims and write them as “1.” and etc. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant by the following: a) “an aperture is formed in a

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central portion” (See Claim 1). Claim 2-7 depend directly or indirectly from a rejected claim and are, therefore, also rejected under 35 U.S.C. 112, second paragraph for the reasons set above.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1, 2, 5 and 7, as far as understood, are rejected under 35 U.S.C. 102(a) as being anticipated by Applicant's Prior Art Figures.

In regards to claim 1, Applicant's Prior Art Figure discloses the following:

a) a housing having a bottom surface and a top surface, wherein an aperture is formed in a central portion thereof extending from the top surface to the bottom surface (See Figure 2); and

b) capacitive material disposed within the housing to create a desired amount of capacitance (See Figure 2);

c) the bottom surface is provided with electrical connections adapted to be connected to a substrate (See Figure 1).

In regards to claim 2, Applicant's Prior Art Figure discloses the following:

a) aperture is rectangular (See Figure 2).

In regards to claim 5, Applicant's Prior Art Figure discloses the following:

a) electrical connections provided on the bottom surface comprise a ball grid array (See Figure 1).

In regards to claim 7, Applicant's Prior Art Figure discloses the following:

a) the aperture is configured to fit over a semiconductor die, and wherein said electrical connections are configured for connection to a package substrate on which the semiconductor die is mounted (See Figure 2).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 3, as far as understood, is rejected under 35 U.S.C. 103(a) as obvious over Applicant's Prior Art Figures in view of Miller et al. (U.S. Patent No. 6,072,211).

In regards to claim 3, Applicant's Prior Art Figures discloses the following:

a) the capacitive material comprises a layer of an electrically conductive material and a layer of a dielectric material.

However, Miller et al. ("Miller") discloses capacitive material (See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Applicant's Prior Art Figures to include capacitive material as disclosed in Miller because it aids in providing small capacitor values.

11. Claims 4 and 6, as far as understood, are rejected under 35 U.S.C. 103(a) as obvious over Applicant's Prior Art Figures in view of Miller et al. (U.S. Patent No. 6,072,211) and Barnett et al. (U.S. Publication No. 2002/0011354).

In regards to claim 4, Applicant's Prior Art Figures fails to disclose the following:

a) the housing is made from a plastic material.

However, Barnett et al. ("Barnett") discloses housing made from plastic (See Paragraph 0010). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Applicant's Prior Art Figures to

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include housing made from plastic as disclosed in Barnett because it aids in protecting the device from being damaged.

In regards to claim 6, Applicant's Prior Art Figures fails to disclose the following:

a) the capacitive material and the housing comprise co-fired ceramic.

However, Barnett discloses housing and capacitive material made from co-fired ceramic (See Paragraph 0024). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Applicant's Prior Art Figures to include capacitive and housing material made from co-fired ceramic as disclosed in Barnett because it aids in providing high density and low cost devices.

Allowable Subject Matter

12. Claims 8-17 are allowed.

Conclusion

13. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: a) Kim et al. (U.S. Patent No. 5,625,221) discloses a semiconductor assembly for a circuit package; b) Saia et al. (U.S. Patent No. 5,874,770) discloses a flexible interconnect film; c) Thuraiyaratnam et al. (U.S. Patent No. 5,903,050) discloses a package having capacitive spokes; d) Stolmeijer et al. (U.S. Patent No. 5,939,766) discloses a high quality capacitor; e) Gambino et al. (U.S. Patent No. 6,025,226) discloses a method of forming a capacitor; f) Kling et al. (U.S. Patent No. 2002/0048927) discloses an embedded capacitor; and g) Javanifard et al. (U.S. Patent No. 6,385,033) discloses a fingered capacitor; and h) deRochemont et al. (U.S. Publication No. 2002/0031918) discloses a ceramic structure.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 703-305-3743.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML

November 29, 2002



AMIR ZARABIAN
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